

## **LARGE-BILLED SAVANNAH SPARROW (*Passerculus sandwichensis rostratus*)**

Kimball L. Garrett, Section of Ornithology, Natural History Museum of Los Angeles County, 900 Exposition Blvd., Los Angeles, CA 90007; kgarrett@nhm.org

### **Criteria Scores**

Population Trend	Range Trend	Population Size	Range Size	Endemism	Population Concentration	Threats
15	5	7.5	10	0	5	5

### **Special Concern Priority**

Currently considered a California Bird Species of Special Concern (non-breeding), Second Priority. Not listed on the original Bird Species of Special Concern list (Remsen 1978) or on the subsequent revision by California Department of Fish and Game (1992).

### **Breeding Bird Survey Statistics for California**

Data inadequate for trend assessment (Sauer et al. 2000); does not breed in California.

### **General Range and Abundance**

Subspecies of the widespread North American Savannah Sparrow, breeding mainly in the delta of the Colorado River in Baja California and Sonora; disperses southward, westward and northward in the fall and winter. Common to abundant formerly, but numbers much reduced since about 1940-1950. It was described by Cassin (1852) as a new species, and its breeding range was still a matter of conjecture into the 20<sup>th</sup> century (Grinnell 1905, Anthony 1906); it continued to be recognized as such by the AOU (1931), but has generally been considered a subspecies of the Savannah Sparrow after the work of Grinnell (19xx) and van Rossem (1947). According to van Rossem (1947) *rostratus* is part of a group of large-billed subspecies generally confined to salt marshes and halophytic scrub. This group also includes *atratus* of coastal Sonora (dubiously separable from *rostratus*) and perhaps *sanctorum* of the San Benitos Islands off the Pacific Coast of Baja California; the latter, an unlikely close relative of *rostratus* on biogeographical grounds, is widespread endemic on the islands, not limited to salt marshes. A brief molecular study by Zink et

al. (1991) found divergence of the mitochondrial DNA which suggested full species status for *rostratus*, but a re-analysis of species limits will require additional work on all Baja California subspecies and should address, in particular, the relationship of the large-billed forms to the saltmarsh subspecies *anulus*, *guttatus* and *magdalenae* of the Pacific coast of the Baja California peninsula, which are generally allied with *beldingi* but morphologically intermediate between that group and the *rostratus* group.

Certain breeding recorded mainly in the delta of the Colorado River, such as on Isla Montague, Baja California (where considered “abundant”; Peresbarbosa and Mellink 1994). Also breeds along the coast of Sonora (though inadvertently not mapped as such in Russell and Monson (1998; p. 295). Has recently bred, at least sporadically, at the Cerro Prieto Geothermal Pond complex south of Mexicali, Baja California (Molina and Garrett 2001).

No quantitative assessment of Large-billed Savannah Sparrow populations has been attempted, but early accounts suggest that it was numerous along the southern California coast in winter (see below). It appears that overall populations dropped dramatically after about 1940-1950, probably coincident with the construction of dams along the Colorado River which drastically changed the habitats in the river’s delta. After the 1950s numbers of wintering birds were low along the coast, although they have increased somewhat since the mid-1980s.

## **Seasonal Status in California**

Non-breeding visitor occurring primarily from late August to early March (Grinnell and Miller 1944, Garrett and Dunn 1981) along the coast and from late July to mid-February (peaking November through January) at the Salton Sea (Patten et al. 2002). Unseasonal records at Salton Sea include early post-breeding migrants on 1 July 2000 and 7 July 1990 and an exceptional early summer bird at the Salton Sea National Wildlife Refuge Headquarters on 4 June 1998 (Patten et al. 2002). One at Bolsa Chica Reserve, Orange Co., 14 June 1992 (Hamilton and Willick 1996) was unseasonal for the coast.

Anthony (1906) reported possible nesting in San Diego and Oceanside, but this never confirmed despite special efforts by egg collectors to locate nests of this taxon (Unitt 1984).

## **Historical Range and Abundance in California**

Heermann collected the first specimen in San Diego around 1850. Found in coastal marshes and beaches along the southern California coast, most commonly from Los Angeles County southward. Smaller numbers north to Santa Barbara (occasionally “common”; Lehman 1994) and Morro Bay, and recorded as far north as Santa Cruz. Not recorded inland on the coastal slope. Also found in fall and winter on some of the Channel Islands, with specimens from San Clemente Island northwest to San Miguel Island.

In the interior found regularly only at the Salton Sea, primarily along the shorelines of the southwestern, southern, and southeastern portions of the Sea. Perhaps occurred regularly in the California portion of the lower Colorado River Valley, but the only certain record for that region is a specimen taken in Yuma in August 1902; a probable sighting was made in the Bill Williams River delta in January 1977 (Rosenberg et al. 1991).

No quantitative assessment of Large-billed Savannah Sparrow populations wintering in California was ever attempted, but early accounts suggest that it was numerous along the southern California coast in winter. It was termed “common” by Grinnell (1898) and by Willett (1912), and

numerous specimens exist in local collections (e.g. 98 skins in the collections of the Natural History Museum of Los Angeles County taken between 1890 and 1940).

### **Recent Range Abundance in California**

A major drop in the numbers of Large-billed Savannah Sparrows wintering in California occurred around the time of publication of Grinnell and Miller (1944). There has been some reappearance in coastal marshes from San Diego north to San Luis Obispo County since around 1990. In the interior Patten et al. (2002) note an increase in numbers at the Salton Sea since the mid-1980s, with a recent peak count of >100 birds at the south end of the Salton Sea 22 November 1989 (AB 44:165). The largest numbers at the Salton Sea have recently been found at Obsidian Butte and the vicinity of the mouth of the New River.

Coastally, small numbers winter in San Diego County, primarily at the Tijuana River estuary; after a long hiatus, first noted here in 1977 (Unitt 1984), with one to five individuals noted on San Diego Christmas Bird Counts through the 1990s.

In Orange County small numbers (up to 11 in November 1994) have been recorded annually in fall and winter at the Seal Beach National Wildlife Refuge, since the late 1980s or early 1990s (Hamilton and Willick 1996); also recorded recently at Bolsa Chica Reserve and Upper Newport Bay.

In Los Angeles County one or two individuals have occurred annually in fall and early winter along the Ballona Creek jetties in Playa del Rey since 1999, and another was on the Los Angeles Harbor breakwater in fall 2001 (Natural History Museum of Los Angeles County files).

In Ventura County small numbers are regular in fall and winter in salt marshes at Point Mugu, but no quantitative or temporal data available.

In Santa Barbara County Lehman (1994) traces the recent history of this subspecies along the Santa Barbara County coast. It was unrecorded there after the 1930s until 1990, when one was

at the mouth of the Santa Ynez River; there have been several subsequent winter records for that locality.

In San Luis Obispo County it is currently a scarce winter visitor to salt marshes at Morro Bay; this subspecies is not mentioned by Marantz (1986), so the re-establishment of a small wintering population has probably occurred within the last 15 years.

Apparently unrecorded north of Morro Bay, San Luis Obispo Co., since early in the 19<sup>th</sup> century.

### **Ecological Requirements**

Breeding habitat is specialized, being nearly limited to open, low salt marsh vegetation including grasses (*Spartina*, *Distichlis*), pickleweed (*Salicornia*), and iodine bush (*Allenrolfea*) in coastal marshlands around the mouth of the Colorado River and along the coast of Sonora to near the Sinaloa border (Russell and Monson 1998); these authors note occasional nesting along inland borders of coastal marshes in *Frankenia*-dominated scrub. Nests mainly in March and April in Sonora, but nest-building noted as late as 20 June there.

Almost entirely restricted to shorelines within the California non-breeding range. Accounts of wintering birds in coastal southern California from days of former abundance emphasize use of salt marshes, beaches, kelp wracks, wharves, docks, city streets (Grinnell and Miller 1944, Unitt 1984). Regularly wintered on beaches of the southern Channel Islands (specimens from San Clemente Island nw. to San Miguel Island). Few coastal records away from salt marshes or the immediate shoreline; one was at a freshwater marsh at San Joaquin Marsh, Irvine, Orange Co., on 28 August 1994 (Hamilton and Willick 1996), and a transient was photographed in annual growth and coastal sage on the Palos Verdes Peninsula 27 August 1995 (D. M. Heindel; Natural History Museum of Los Angeles County files).

At the Salton Sea occurs in low halophytic scrub just back from the shoreline, dominated by iodine bush (*Allenrolfea occidentalis*), saltbush (*Atriplex* spp.), and the introduced *Bassia*

*hyssopifolia* and stands of young salt-cedar (*Tamarix ramosissima*) growth. They also forage on barnacle beaches on the shore of the Sea.

### **Threats**

The steep decline in the global population of this subspecies is almost certainly tied to massive habitat changes in the delta of the Colorado River after construction of upstream dams and subsequent reduction of freshwater flow to the river's mouth; however, no quantitative assessment of the extent of suitable salt marsh habitat exists for pre- or post-dam construction eras, so the role of habitat loss or modification can only be speculated upon. Major dam-building along the lower Colorado River began with the construction of Laguna Dam in 1907, and reached a peak with the completion of Hoover Dam in 1936, Parker and Imperial Dams two years later, and Davis Dam in 1954 (Rosenberg et al. 1991). The period of steep decline of Large-billed Savannah Sparrows closely matched this dam-building era. The recent slight resurgence in numbers of Large-billed Savannah Sparrows reaching California may be the result of increased habitat quality and breeding success following several years of greater-than-average releases of fresh water to the delta in the 1980s and 1990s.

Given the overriding importance of breeding habitat loss on the declines of this species, population impacts from modification of winter habitats are probably slight. The cumulative loss of salt marsh habitats in coastal southern California has limited potential winter habitat for these sparrows. A possible factor in declining habitat quality on the southern California coast is the thorough daily raking of large stretches of beaches by county and state maintenance workers; in the process accumulations of kelp (and associated food resources for the sparrows) are not allowed to occur. Urbanization adjacent to the inland limit of beaches also eliminates weedy growth and tracts of salt grass (*Distichlis*) which formerly provided an abundant food source for these sparrows. The period of former abundance of Large-billed Sparrows in coastal towns and wharves in southern California preceeded the extensive urbanization that has "sterilized" these beach areas.

Nesting attempts have been destroyed by high tides on Isla Montague in the delta of the Colorado River (Peresbarbosa and Mellink 1994).

### **Management and Research Recommendations**

- Assess breeding populations. An understanding of the population dynamics and conservation concerns of this species must begin with a thorough assessment of population sizes, habitats, and trends in the delta of the Colorado River and other marshlands in coastal Sonora and ne. Baja California.
- Determine subspecies limits within the Large-billed Savannah Sparrow complex. Taxonomic issues surrounding this complex still need to be resolved. For example, is *rostratus* separable from *atratus* of the central and southern Sonora coast and adjacent Sinaloa? And what is the relationship between these two taxa and the relatively large-billed populations of the west coast of Baja California Sur as well as *sanctorum* on the Islas San Benitos? As a corollary, genetic markers and other techniques should be used to confirm the source of California wintering populations.
- Increase protection and restoration of southern and central California coastal marshes.
- Work with agencies and NGOs in the southwestern United States and northwestern Mexico to assure a greater flow of fresh water to the mouth of the Colorado River to replenish marsh habitats there; more generally, address the larger issue of profligate water use and human population increases in the entire region.

### **Monitoring Needs**

Coastal salt marsh surveys, perhaps best accomplished at high tides, should be conducted to determine winter numbers and assess population trends. Similarly, surveys of the shoreline of the Salton Sea, at least from Salton City around south end to Bombay Beach, should be undertaken

annually to examine population trends and interannual variation in numbers. Additional monitoring (e.g. of breeding populations) would have to take place outside of California.

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